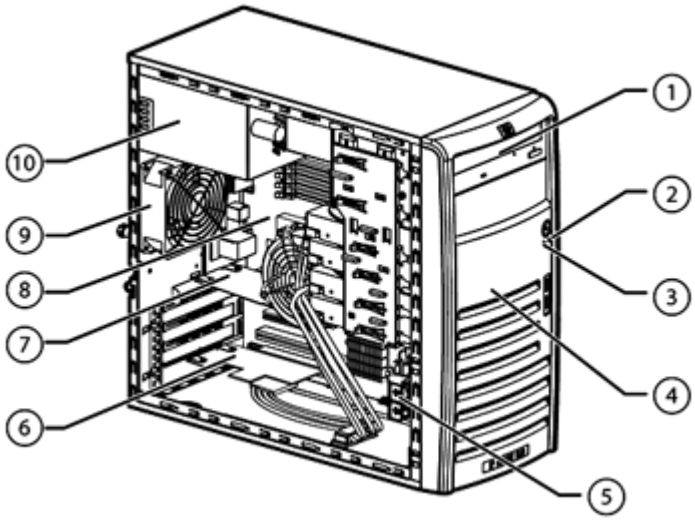
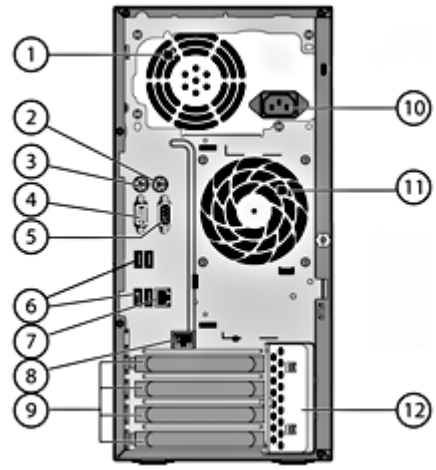
Overview





Front View:

1. CD-ROM Drive
2. Power LED
3. Drive Activity LED
4. Well ventilated chassis design
5. Full Length Card Retainer
6. HDD controller card (Optional)
7. HP LO 100c Management Card (Optional)
8. Main System Board
9. Rear System Fan
10. 370W Power Supply

Rear View:

1. PSU fan
2. PS/2 mouse port
3. PS/2 keyboard port
4. VGA port
5. Serial port A
6. Rear USB 2.0 ports
7. LAN port (RJ-45)
8. HP LO100c Remote Management Card port (Optional)
9. PCI slot covers
10. Power supply outlet
11. Rear system fan
12. PCI slot cover lock

Overview

At A Glance

- Processor:
  - Dual-Core AMD Opteron 1000 Series processors
  - Single-Core Athlon 64 3500+ processors
- Memory:
  - 512 MB Standard / 8 GB Maximum of PC2-5300 DDR2 667 MHz ECC unbuffered Memory
- Storage Controller:
  - 4 Port SATA controller with Embedded RAID on Motherboard (RAID 0,1,5)
- Internal Drive Support:
  - 4 HDD Support:
    - 2TB SATA max storage (utilizing 500GB CTO HDD)
    - 1.2TB SAS max storage (4 x 300GB)
- Network Controller:
  - Embedded NC320i PCI Express Gigabit Server Adapter
- Expansion Slots:
  - Two 32-bit/33MHz PCI at 3.3V slot
  - Two PCI-Express slots (x8 and x16).
- USB Ports:
  - Eight total USB ports (2 internal, 2 front, 4 rear)
- Form Factor:
  - Micro ATX tower
- Management:
  - Standard IPMI reporting
  - Lights Out 100c Remote Management Card (Optional)
  - Warranty: This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners. Hardware diagnostic support and repair is available for one year from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Additional support may be covered under the warranty or available for an additional fee. Enhancements to warranty services are available through HP Care Pack services or customized service agreements.. Certain restrictions and exclusions apply. SATA hard drives have a one year warranty. (3-1-1 warranty offered in AP only).
  - Server Warranty includes 1 year Parts, 1 year Labor, 1-year on-site support with next business day response. Additional information regarding worldwide limited warranty and technical support is available at: http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html

Standard Features

NOTE: For a brief, printer friendly data sheet that describes this product and informs you of the essential capabilities and specifications, please visit: http://h71028.www7.hp.com/ERC/downloads/4AA1-0483ENW.pdf

Processor One of the following depending on Model	Dual-Core AMD Opteron 1210 (1.8 GHz) Dual-Core AMD Opteron 1214 (2.2 GHz) Single-Core AMD Athlon 3500+ (2.2 GHz) NOTE: Offered through Configure-To-Order only. See Factory Integrated Models section for more details. Dual-Core AMD Opteron 1216 (2.4 GHz) NOTE: Offered through Configure-To-Order only. See Factory Integrated Models section for more details. Dual-Core AMD Opteron 1220 SE (2.8 GHz) NOTE: Offered through Configure-To-Order only. See Factory Integrated Models section for more details.
Cache Memory One of the following depending on Model	2MB (2x1MB) Level 2 cache (Opteron models) 512KB Level 2 cache (Athlon models)
Chipset	nVidia MCP55S Pro
Memory Protection	ECC

Memory		
	Type	PC2-5300 unbuffered DDR2 SDRAM (667MHz)
	Standard	512 MB
	Maximum	8 GB

Network Controller	Embedded NC320i PCIe Gigabit Server Adapter

Expansion Slots

Slot Number	Bus Speed	Hot Plug Y/N	PCI Voltage	Notes
4	X16 PCI Express	No	n/a	Full Height
3	X8 PCI Express	No	n/a	In a x8 slot Full Height
1/2	32bit/33MHz PCI	No	3.3V	Full Height

NOTE: Only one brace for full length cards provided.
NOTE: Slot 2 only supports standard PCI 32 bit add-on card due to proximity of the Heat Sink.

Standard Features

Storage Controller One of the following depending on Model	HP 8 Internal Port SAS HBA with RAID (0,1) Integrated 4 port SATA controller with embedded RAID (0,1,5)* *Embedded RAID setup instructions located in User Guide, CTO RAID set-up not available. HP ProLiant 100 Series Server User Guide: http://h20000.www2.hp.com/bc/docs/support/SupportManual/c00368941/c00368941.pdf?jumpid=reg_R1002_USEN		
Storage	CD-ROM	48x IDE (ATAPI) CD-ROM Drive	
	Hard Drives		
	SATA	160GB SATA 7200 rpm Drive	
Maximum Internal Storage	**Type**		
	SAS (Not-hot plug)	1.2TB	(4x300GB)
	SATA (Non-hot plug)	2TB	(4 x 500GB*)
	*Offered through Configure-To-Order only. See Factory Integrated Models section for more details		
Interfaces	Parallel	0	
	Serial	1	
	Pointing Device (Mouse, PS2)	1	
	Graphics	1	
	Keyboard (PS2)	1	
	USB	8 total (4 rear, 2 front panel, 2 internal (one for USB Tape connectivity)) NOTE: Internal USB ports are optimal for the attachment of HP USB DAT Tape Drives NOTE: Please see the following URL for additional information regarding USB support: http://h18004.www1.hp.com/products/servers/platforms/usb-support.html	
	Network RJ-45 (Ethernet)	1	
	Management	Optional Lights-Out 100c Remote Management port	
Graphics	Integrated 2MB video controller		
Form Factor	Micro ATX Tower (4U)		

Standard Features

Remote Management	Lights-Out 100c	Lights Out LO100c is a Remote Management Card (RMC) for HP ProLiant 100 series servers that do not have embedded LO100i. The LO100c has all the features of the LO100i Advanced license and allows customers, or their service providers, to remotely manage ProLiant servers over a LAN or the Internet from anywhere, anytime regardless whether the server is located in the same building, across town, or around the globe. With LO100c, users can acquire complete remote control with Virtual KVM (graphical hardware-based, remote console). Users can also access the server's serial console, control system power, update system firmware and software, as well as monitor system environmental conditions. The LO100c remote management card can be accessed from a web browser or command line interface. This virtual "at-the-server" functionality means administrators stay in control of remote HP ProLiant 100 series servers. The HP Lights-Out100c consists of a management processor and firmware that provides cost-effective, entry-level lights-out functionality, basic system board management functions, and diagnostics. NOTE: For more information, please refer to the QuickSpecs for the LO100c found at: http://h18004.www1.hp.com/products/servers/management/remotemgmt/lightsout100/index.html
Core Infrastructure Management	Subscriber's Choice	Subscriber's Choice Driver and Support Alerts/Notifications is a web-based email subscription service that provides software and driver change notifications for ProLiant products. Sign up at: http://www.hp.com/go/subscriberschoice and customize your profile to receive various new alerts as they become available, on a weekly or monthly basis.
	ROMPaq software and latest drivers	The latest software, drivers, and firmware fully optimized and tested for your ProLiant server and options, available through ProLiant Support Packs or downloaded from software and drivers download pages website at: http://www.hp.com/go/support.
Industry Standard Compliance	ACPI V2.0 Compliant PCI 2.3 Compliant PXE Support WOL Support IPMI 2.0 compliance	
Manageability	Embedded IPMI standard reporting Optional HP ProLiant Lights-Out 100c Remote Management Card	
Security	Power-on password Setup password	

Standard Features

Server Power Cords	12' country specific, lowline NEMA power cord. NOTE: Rack models ship standard with a 12' IEC cable. Most redundant power supply options ship with a 6' country specific power cord. Localized cables included with geographic specific models in other world regions.
Power Supply	370 Watts
System Fans	1 – Non-redundant system fan shipped standard 1 – Non-redundant CPU heatsink fan shipped standard
OS Support	Microsoft Windows Server 2003: Standard & Enterprise Edition (32 and 64 bit) Microsoft Windows Small Business Server 2003 Microsoft Windows 2003 Server, Web Edition Microsoft Windows Server 2008 Novell NetWare 6.5 SBS (only after SP6 release) RedHat Enterprise Linux SUSE Linux Enterprise Server NOTE: For an up-to-date listing of the latest ML115 OS support matrix, please see: http://www.hp.com/go/supportos NOTE: For an up-to-date listing of the latest software and drivers available for your server, please select your server: http://h20000.www2.hp.com/bizsupport/TechSupport/Product.jsp?lang=en&cc=us&taskId=135&prodTypeId=15351&prodCatId=241435. NOTE: Drivers may also found on the base media for some Linux OS's. When configuring your server, please consult your base media driver base, or visit HP.com at: http://h18023.www1.hp.com/support/files/server/us/index.html NOTE: For more Linux OS support & certification information, please visit our the ProLiant & Bladesystem Server Linux matrix http://h18004.www1.hp.com/products/servers/linux/hpLinuxcert.html
Factory Express Portfolio for Servers and Storage	HP Factory Express offers configuration, customization, integration and deployment services for HP servers and/or storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed. Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging and custom packaging HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant, HP ProLiant Server Blades, HP BladeSystem, HP 9000 servers, as well as, the MSAxxxx, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches. For more information on Factory Express services for your specific server model please contact your sales representative or go to: http://www.hp.com/go/factory-express.

Standard Features

HP Enterprise Configurator	The HP eCo-Enterprise Configurator now provides factory default racking for our HP hardware portfolio. This approach is aligned with our strategic direction to meet the needs and expectations of our valued customers. If you require "custom" rack configuration, please contact HP's Customer Business Center or an Authorized Partner for assistance.

Service and Support	HP Care Pack Services provide total care and support expertise with committed response designed to meet your IT and business needs. HP Care Pack services include coverage for the HP branded hardware options qualified for the server that are purchased at the same time or afterward and internal to the enclosure. It also includes the 22" and smaller external monitors and tower UPS options up to 3kVA. These items will be covered at the same service level and for the same coverage period as the server. Coverage of UPS Battery is not included and standard warranty terms & conditions apply. For servers or storage systems installed within a rack, service also covers all HP qualified rack options installed within the same rack. To fully capitalize on your HP ProLiant servers' capabilities requires a service partner who thoroughly understands your server technology and systems environment. HP Services, an industry leader in provision of multi vender support solutions provides a range of support services designed to meet the varying needs of business. Whether an SMB or large global corporation HP has a ProLiant server support offer to help you speedily deploy and maximize system uptime. Recommended Service - Simplify ProLiant solution implementation, maintenance and management. • Support Service -3 Year, 9x5 Next Business Day coverage, excluding HP holidays only • Deployment Service - Hardware Installation only Enhanced Service - Optimize service level to increase IT performance and availability • Support Service - 3 Year 13x5 Same Business Day, 4-Hour response coverage • Deployment Service - Installation and Start-up only Installation & Start-Up of a ProLiant server and Microsoft or Linux O/S per the Customer Description and/or Data Sheet. To be delivered on a scheduled basis 8am-5pm, M-F, excl. HP holidays. For a complete listing of service offerings and information visit: http://www.hp.com/services/proliantservices http://www.hp.com/go/proliant/carepack

Models

NOTE: For the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.

SATA Models

ML115 Opteron 1210 NHP-SATA (1P) 437288-xx1	Processor(s) One of the following depending on Model	(1) Dual-Core AMD Opteron 1210 (1.8GHz, 2MB Cache) (1) Dual-Core AMD Opteron 1214 (2.2GHz, 2MB Cache)
ML115 Opteron 1214 NHP-SATA (1P) 437289-xx1	Cache Memory	2MB (2x1MB) Level 2 cache (Opteron)
	Memory	512 MB PC2-5300 ECC (DDR2-667Mhz) (1 x 512 MB)
	Storage Controller	HP Embedded 4 Port SATA Controller with embedded RAID (0,1,5)
	Hard Drive	160GB SATA HDD
	Internal Storage	Maximum 2TB (4 x 500GB) SATA
	Optical Drive	48x CD-ROM
	Form Factor	Micro ATX Tower

SAS Models

ML115 Opteron 1214 NHP-SAS (1P) 437290-xx1	Processor(s)	(1) Dual-Core AMD Opteron 1214 (2.2GHz, 2MB Cache)
	Cache Memory	2MB (2x1MB) Level 2 cache (Opteron)
	Memory	512 MB PC2-5300 ECC (DDR2-667Mhz) (1 x 512 MB)
	Storage Controller	HP 8 Internal Port SAS HBA with RAID (0,1)
	Hard Drive	72GB SAS HDD
	Internal Storage	Maximum 1.2TB (4 x 300GB) SAS
	Optical Drive	48x CD-ROM
	Form Factor	Micro ATX Tower

Country Code Key	xx=00	NA
	xx=01	Australia
	xx=03	UK
	xx=04	Germany
	xx=05	France
	xx=20	Brazil
	xx=37	AP
	xx=42	Euro
	xx=AA	PRC
	xx=29	Japan
	xx=AB	Taiwan
	xx=AD	Korea

Configuration Information-Factory Integrated Models

NOTE: This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for information on CTO product offerings and requirements.
NOTE: HP does not allow factory integration of options into standard models listed above. Configure-to-order servers must start with a CTO Chassis.
NOTE: This product offering does not support HP Factory Express Server Configuration Level 1.
NOTE: FIO indicates that this option is a Factory Installable Option.

Step 1: Base Configuration

Models	HP ProLiant ML115 NHP CTO Chassis (North America)	439138-B21
	Factory Integrated Models ship with:	
	Embedded NC320i PCI Express Gigabit Server Adapter	
	Keyboard and Mouse	
	370 Watts, PFC (Power Factor Correcting)	
	Tower Form Factor (4U)	
	NOTE: HP SATA Drive Models are limited to <2TB support.	
	NOTE: On SATA models with embedded RAID, setup instructions are located in User Guide, CTO RAID is set-up not available. HP ProLiant 100 Series Server User Guide: http://h20000.www2.hp.com/bc/docs/support/SupportManual/c00368941/c00368941.pdf?jumpid=reg_R1002_USEN	

Step 2: Choose Required Options (only one of the following from each list unless otherwise noted)

Processors	AMD Athlon Processor Model 3500+ (2.2 GHz) Option Kit, FIO	440962-L21
	AMD Opteron™ Processor Model 1220SE (2.8 GHz) Option Kit, FIO	437376-L21
	AMD Opteron Processor Model 1216 (2.4 GHz) Option Kit, FIO	437375-L21
	AMD Opteron Processor Model 1214 (2.2 GHz) Option Kit, FIO	437374-L21
	AMD Opteron Processor Model 1210 (1.8 GHz) Option Kit, FIO	437373-L21
Memory	2 GB Unbuffered PC2-5300 ECC DIMM (1 x 2 GB)	432806-B21
	1 GB Unbuffered PC2-5300 ECC DIMM (1 x 1 GB)	432804-B21
	512 MB Unbuffered PC2-5300 ECC DIMM (1 x 512 MB)	432803-B21

Configuration Information-Factory Integrated Models

Hard Drives	Serial ATA (SATA) - Non-hot Plug HDD	
	HP 500GB 1.5G SATA 7.2K NHP 3.5" HDD, FIO*	404469-B21
	HP 250GB 1.5G SATA 7.2K NHP 3.5" HDD	411276-B21
	HP 160GB 1.5G SATA 7.2K NHP 3.5" HDD	411275-B21
	HP 80GB 1.5G SATA 7.2K NHP 3.5" HDD	383410-B21
	* Factory Integrated Only	
	HP Non-Hot Plug SATA Cable	442901-B21
	NOTE: The purchase of a SATA Hard Disk Drive requires the purchase of HP SATA Cable option kit (P/N 442901-B21).	
	Serial Attached SCSI (SAS) Non-Hot Plug	
	HP 300GB SAS 3.5" 15K NHP	431950-B21
	HP 146GB SAS 3.5" 15K NHP	432093-B21
	HP 72GB SAS 3.5" 15K NHP	432095-B21
Optical Drives	CD-RW/DVD-ROM Combo Drive Option Kit	331346-B21
	HP DVD+R/RW 8X HH	383974-B21
	HP ProLiant 48X CD	398972-B21
	DVD ROM Drive 16x	217053-B21
	NOTE: For the installation of Windows and other OS's, a floppy drive (DC361B) may be required to complete driver installation. A USB drive key may not work to complete driver installation.	

Step 3: Choose Additional Options for Factory Integration

NOTE: For additional options, please refer to the "Options" section below.
NOTE: Some options may not be factory integratable. Please contact your local sales representative for additional information.

Operating Systems	Pre-install Microsoft Windows 2003 SBS Standard Edition	
	MS W2003 SBS R2 Std 1XX FIO Eng SW	432564-xx1
	MS W2003 SBS R2 Prm 1XX FIO Eng SW	432566-xx1

Configuration Information-Factory Integrated Models

Country Code Key	xx=00	NA
	xx=01	Australia
	xx=03	UK
	xx=04	Germany
	xx=05	France
	xx=06	Italy
	xx=07	Spanish
	xx=20	Brazil
	xx=21	Hungarian
	xx=22	Czech
	xx=24	Polish
	xx=33	Dutch
	xx=37	AP
	xx=42	Euro
	xx=AA	PRC
	xx=29	Japan
	xx=AB	Taiwan
	xx=AD	Korea

Options

Memory	2 GB Unbuffered PC2-5300 ECC DIMM (1 x 2 GB)	432806-B21
	1 GB Unbuffered PC2-5300 ECC DIMM (1 x 1 GB)	432804-B21
	512 MB Unbuffered PC2-5300 ECC DIMM (1 x 512 MB)	432803-B21
Optical Drives	CD-RW/DVD-ROM Combo Drive Option Kit	331346-B21
	48X CD-ROM Option, Carbon	398972-B21
	DVD-RW Drive Option Kit	383974-B21
	1.44 MB USB Diskette Drive	DC361B
	NOTE: For the installation of Windows and other OS's, a floppy drive may be required to complete driver installation. A USB drive key may not work to complete driver installation.	
Hard Drives	**Serial – ATA** (SATA) – **Non-Hot Plug** (SATA Models Only)	
	HP 250GB 1.5G SATA 7.2K NHP 3.5" HDD	411276-B21
	HP 160GB 1.5G SATA 7.2K NHP 3.5" HDD	411275-B21
	HP 80GB 1.5G SATA 7.2K NHP 3.5" HDD	383410-B21
	NOTE: When purchasing systems with the 500GB Non-Hot Plug SATA drives, please reference the Configuration Information Section of this QuickSpecs to order via Configuration to Order.	
	HP Non-Hot Plug SATA Cable	442901-B21
	NOTE: The purchase of a SATA Hard Disk Drive requires the purchase of HP SATA Cable option kit (P/N 442901-B21).	
	Serial Attached SCSI (SAS) **Non-Hot Plug** (SAS Models Only)	
	HP 300GB SAS 3.5" 15K NHP	431950-B21
	HP 146GB SAS 3.5" 15K NHP	432093-B21
	HP 72GB SAS 3.5" 15K NHP	432095-B21
	NOTE: The purchase of SAS hard drives requires the purchase of part number 430479-B21, the HP Internal SAS/SATA 4-Port Cable. This cable is standard in the SAS BTO model.	

Options

Storage Controllers	HP SC44Ge Host Bus Adapter	416096-B21
	HP SC11Xe Host Bus Adapter	412911-B21
	HP 8 Internal Port SAS HBA with RAID NOTE: PCI-X Interface (PCI 32bit/33MHz compatible) NOTE: Slot 2 only supports standard PCI 32 bit add-on card due to proximity to Heat Synk.	347786-B21
	HP Smart Array E200/128 BBWC Controller	411508-B21
	64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2 NOTE: PCI-X Interface (PCI 32bit/33MHz compatible) NOTE: Slot 2 only supports standard PCI 32 bit add-on card due to proximity to Heat Synk	374654-B21
	128MB Battery-Backed Write Cache Enabler NOTE: Supports the Smart Array E200 Controller, Smart Array 641 Controller and Smart Array 642 Controller.	351580-B21
	HP SAS/SATA 4-Port Cable NOTE: The purchase of a SAS Storage Controller requires the purchase of HP SAS/SATA 4-Port Cable (P/N 430479-B21) NOTE: On SATA models with embedded RAID, setup instructions are located in User Guide, CTO RAID is set-up not available. HP ProLiant 100 Series Server User Guide: http://h20000.www2.hp.com/bc/docs/support/SupportManual/c00368941/c00368941.pdf?jumpid=reg_R1002_USEN	430479-B21
Communications	HP NC110T PCI Express Gigabit Server Adapter NOTE: Does not support Windows 2000	434905-B21
	HP NC360T PCI Express Dual Port Gigabit Server Adapter	412648-B21
	Agere 2006 PCI Hi-Speed 56K Modem	440519-B21
Tape Backup Drives	NOTE: Installation of SCSI internal tape drives in a ML115 model requires SCSI controller kit (PN: 374654-B21). NOTE: For complete listing of tape drive offerings see: http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html	
	USB Tape Drives	
	HP StorageWorks DAT 40 USB Internal Tape Drive (Carbonite)	DW022A
	HP StorageWorks DAT 72 USB Internal Tape Drive (Carbonite)	DW026A
	HP DAT160 USB Internal Tape Drive for ProLiant	Q1580A
	DAT SAS Tape Drives	
	HP StorageWorks DAT 160 SAS Internal Tape Drive	Q1587A
	DAT SCSI Tape Drives	
	HP StorageWorks DAT 40 SCSI Internal Tape Drive (Carbon)	C5686C
	HP StorageWorks DAT 72 SCSI Internal Tape Drive (Carbon)	Q1522B
	HP StorageWorks DAT 160 SCSI Internal Tape Drive (Carbon)	Q1573A

Options

HP D2D Backup System	HP StorageWorks D2D110 Backup System NOTE: 1TB of Disk Storage.	EH880A
	HP StorageWorks D2D110 Backup System with Data Protector Express Software Kit NOTE: 1TB of Disk Storage	EH923A
	HP StorageWorks D2D120 Backup System NOTE: 2TB of Disk Storage.	EH884A
	HP StorageWorks D2D120 Backup System with Data Protector Express Software Kit NOTE: 2TB of Disk Storage.	EH924A
	HP StorageWorks D2D130 Backup System NOTE: 3TB of Disk Storage.	EH950A
	HP StorageWorks D2D130 Backup System with Data Protector Express Software Kit NOTE: 3TB of Disk Storage.	EH951A
	HP StorageWorks D2D130 Backup System with LTO-3 Ultrium 920 SAS Tape Drive NOTE: 3TB of Disk Storage.	EH952A
	NOTE: Please see the HP D2D Backup Systems QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/12651_div/12651_div.html (Worldwide)	
Installation of Server into Racks	Monitor/Utility Shelf	253449-B21
Remote Management	HP ML115 Lights-Out 100c Remote Management Card	437372-B21
UPS	HP T1000 UPS, JPN/TWN	AF404A
	HP T1000 UPS, NA	AF403A
	HP T1000 UPS, INTL	AF405A
	HP T750 UPS, Low Voltage (NA/JPN)	378439-D71
	HP T750 UPS, High Voltage (INTL)	378439-B31
USB Options	HP 1GB USB 2.0 Floppy Drive Key	442085-B21
	HP 256MB USB 2.0 Floppy Drive Key	442084-B21
	HP USB 2-Button Optical Scroll Mouse (Carbonite/Silver)	DC172B
	HP USB 04 Standard Keyboard	DT528A#xxx
	USB 2.0 4-port HUB	DG954A

Options

HP KVM Switch Options	HP 1x4 Console Switch	AF611A
	HP PS2 Server Console Cable, 6 foot, 2-Pack	AF612A
	HP USB Server Console Cable, 6 foot, 2-Pack	AF613A

NOTE: Required for supporting USB peripherals.

NOTE: For additional information regarding KVM Switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: http://www.hp.com/go/kvm.

Service and Support Offerings (HP Care Pack Services)	**Hardware Services 4-Hour On-site Service**	
	13-Hour x 5-Day Coverage, 3 Years	U4434E
	24-Hour x 7-Day Coverage, 3 Years	U4435E
	Hardware Services Next Business Day On-Site Service	
	9-Hour x 5-Day Coverage, 3 Years	U4433E
	Hardware Services 6 Hour Call-to-Repair	
	24-Hour x 7-Day Coverage, 3 Years, 6 Hour Call-to-Repair	U4436E
	Hardware Installation Service	
	HP Install ProLiant ML115 Service	U4444E
	NOTE: For more information, customer/resellers can contact http://www.hp.com/services/carepack.	

HP ProLiant ML115 Models

NOTE: Memory configurations listed do not apply to "Factory Integrated Models".

Standard Memory

512 MB of PC2-5300 DDR2 SDRAM running at 512 MB with ECC capabilities Memory installed (1 x 512 MB SDRAM DIMM).

Standard Memory Plus Optional Memory

Up to 5120 MB memory is available with the optional installation of PC2-5300 un-buffered ECC DDR2 SDRAM DIMM Memory kits.

Standard Memory Replaced with Optional Memory

Up to 8192 MB of memory is available with the removal of the standard 512 MB of memory and the optional installation of PC2-5300 un-buffered ECC DDR2 SDRAM DIMM Memory kits.

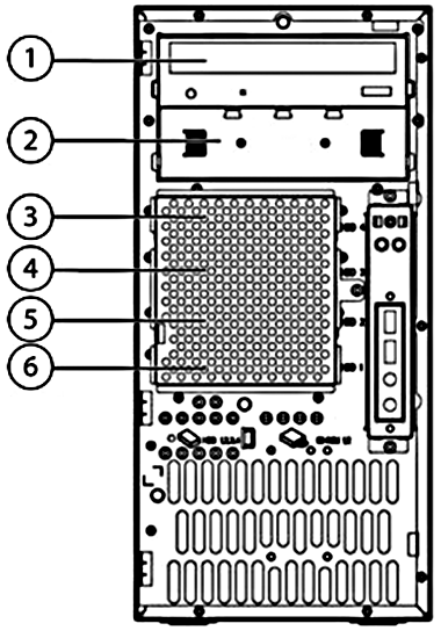
NOTE: The below chart does not represent all possible memory configurations.

NOTE: In memory configurations requiring 2 DIMM and 4 DIMM configurations, the memory must be paired for optimal performance. This means that DIMMs in slot 1 and 3 have to be identical, in slot 2 and 4 have to be identical. (For example, the Optional memory configuration shown below)

Memory		Slot			
		4	3	2	1
Standard	512 MB	Empty	Empty	Empty	512 MB
Optional	5120 MB	2048 MB	512 MB	2048 MB	512 MB
Maximum	8192 MB	2048 MB	2048 MB	2048 MB	2048 MB

Following are memory options available from HP:

2 GB Unbuffered PC2-5300 ECC DIMM (1 x 2 GB)	432806-B21
1 GB Unbuffered PC2-5300 ECC DIMM (1 x 1 GB)	432804-B21
512 MB Unbuffered PC2-5300 ECC DIMM (1 x 512 MB)	432803-B21



1	48x IDE (ATAPI) CD-ROM
2	Removable Media Bays (1.6" each)
3, 4, 5, 6	Four (4) Non-Hot Plug Drive Bays

Drive Support

	Quantity Supported	Position Supported	Controller
Removable Media			
DVD + CDRW Drive	2	1 or 2	Integrated IDE (ATAPI)
DVD-RW Drive	2	1 or 2	Integrated IDE (ATAPI)

Hard Drives (SATA Models only)

SATA 1.5Gb – Non-Hot Plug

	Quantity Supported	Position Supported	Controller
3.5-inch 500GB 7.2K SATA 250GB 7.2K SATA 160GB 7.2K, SATA 80GB 7.2K, SATA	Up to 4	3,4,5,6	4 Port SATA controller with Embedded RAID on Motherboard (0,1,5)

Storage

Hard Drives (SAS Models only)

SAS – Non-Hot Plug

	Quantity Supported	Position Supported	Controller
3.5-inch 300GB 15K SAS 145GB 15K SAS 72GB 15K, SAS	Up to 4	3,4,5,6	HP 8 Internal Port SAS HBA with RAID (0,1)

Maximum Storage Capacity – SATA/SAS Models

Internal	SATA	1TB (4x250GB (BTO) 2TB (4 x 500GB (CTO)
	SAS	1.2TB (4x300GB)
Total	SATA	1TB (4x250GB (BTO) 2TB (4 x 500GB (CTO)
	SAS	1.2TB (4x300GB)

Tape Drives and D2D Backup System

NOTE: A SCSI controller needs to be purchased to operate internal SCSI devices in the SATA Models.

NOTE: For an up-to-date listing of the latest O/S Support details for each of the Tape Drives listed below, please see the following: http://h18000.www1.hp.com/products/quickspecs/division/10233.html (Worldwide)

	Position Supported	Controller	Controller/HBA Option Kit Part Number
Internal USB Tape Drives DAT 40 USB DAT 72 USB DAT 160 USB	2	USB 2.0 port	N/A
External USB Tape Drives DAT 40 USB DAT 72 USB DAT 160 USB	External	USB 2.0 port	N/A
Internal SAS Tape Drives DAT 160 SAS	2	HP SC44Ge Host Bus Adapter	416096-B21
External SAS Tape Drives DAT 160 SAS	External	HP SC44Ge Host Bus Adapter	416096-B21
Internal SCSI Tape Drives DAT 40 DAT 72 DAT 160	2	HP SC11Xe Host Bus Adapter	412911-B21
External SCSI Tape Drives DAT 40 DAT 72 DAT 160	External	HP SC11Xe Host Bus Adapter	412911-B21

Storage

HP StorageWorks D2D Backup Systems D2D110 D2D120 D2D130	Embedded Network Controller	N/A

Power Specifications

Part Number	416121-001
Spare Kit	419029-001
Operational Input Voltage Range (Vrms)	100 to 127 and 200 to 240 V auto ranging
Frequency Range (Nominal) (Hz)	50 to 60 Hz

Nominal Input Voltage (Vrms)	100	115	208	220	230	240
Max Rated Output Wattage Rating	N/A	370	N/A	N/A	370	N/A
Nominal Input Current (A rms)	N/A	8	N/A	N/A	4	N/A
Max Rated Input Wattage Rating (Watts)	N/A	N/A	N/A	N/A	N/A	N/A
Max. Rated VA (Volt-Amp)	N/A	N/A	N/A	N/A	N/A	N/A
Efficiency (%)	N/A	>65%	N/A	N/A	>65%	N/A
Power Factor	N/A	N/A	N/A	N/A	N/A	N/A
Leakage Current (mA)	0.25mA (at 60HZ)	N/A	N/A	N/A	N/A	N/A
Maximum Inrush Current (A peak)	N/A	No component was damaged and input fuse shall not blow	N/A	N/A	No component was damaged and input fuse shall not blow	N/A
Maximum Inrush Current duration (mS)	N/A	N/A	N/A	N/A	N/A	N/A

	Power **
HP ProLiant ML115 Fully Configured	(see **)
Fully Loaded System output Wattage (W)	370W
Fully Loaded System Input Current (A rms)	8A @ 115V, 4A @ 230V
Fully Loaded System Thermal (BTU- Hr)	1907BTU
Fully Loaded System VA (Volt-Amp)	920
System Leakage with all power supplies loaded (mA)	0.75mA@240V 0.45mA@120V
System Inrush Current with all power supplies loaded (A)	80A
Power cord requirements	Nema 5-15P to IEC320-C13
	IEC320-C13 to IEC320-C14
	**Power shown is for a fully configured system consisting of (1) CPU, (4) double-sided DIMMs, (4) HDDs, (1) CD-ROM, (1) DVD-ROM, (4) PCI cards, and (1) power supply.

Power Cords (13 Cord Sets)	Power Cord Part Number
Country	
APD	100614-009, 100613-008, 139867-004, 187487-004 (India)
Brazil	285052-001
Australia	100661-001
Euro	100614-009
France	100614-009
Germany	100614-009
Japan	139867-004
PRC	286496-001
UK	100613-008
US, Taiwan	121565-001

System Unit	**Dimensions** (HxWxD) (with feet)	14.46 x 6.88 x 16.76 in (36.7 x 17.5 x 42.6 cm)	
	Weight (approximate)	23.15 lb (10.5 kg)	
	Input Requirements (per power supply)	Range Input Voltage	100 to 127 VAC/200 to 240 VAC
		Normal Line Voltage	115 or 230 VAC
	Line Frequency	50 to 60 Hz	
	Rated Input Current	load 8A at 115VAC, 4A at 230VAC	
	BTU Rating	1907 BTU	
	SCSI Connectors (SCSI Models only)	One internal LVD/SE connector for U160 devices, plus two internal SE connectors for legacy devices.	
	Power Supply Output Power (per power supply)	Rated Steady-State Power	370W
		Maximum Peak Power	370W
	Temperature Range	Operating	50° to 95° F (10° to 35° C)
		Shipping	-31° to 140° F (-35° to 60° C)
	Relative Humidity (non-condensing)	Operating	10% to 90%
		Non-operating	10% to 95%
	Acoustic Noise	Idle (Fixed Disk Drives Spinning)	
		L WAd (BELS)	5.4
		L pAm (dBA)	36
		Operating (Random Seeks to Fixed Disks)	
		L WAd (BELS)	5.9
		L pAm (dBA)	38

HP 160GB 1.5G SATA 7.2K NHP 3.5" HDD 411275-B21	160GB 7,200 rpm	**Capacity**	160,041 MB	
		Height	1.0 in. (26.1 mm)	
		Width	4.0 in. (101.6 mm)	
		Interface	Serial ATA	
		Transfer rate synchronous (maximum)	1.5 Gb/s	
		Seek time (typical reads, including settling)	Single track	0.9 ms
			Average	9.0 ms
			Full-stroke	17.8 ms
			Rotational speed	7,200 rpm
		Physical Configuration	Bytes/Sector	512
			Logical Blocks	312,581,808
		Operating Temperature	41° to 131° F (5° to 55° C)	

NHP 72GB 3G SAS 15K 3.5" HDD 431950-B21	72GB 15K	Capacity	73,407,856,856	
		Height	1.0 in (25.4mm)	
		Width	4.0 in. (101.6 mm)	
		Interface	SAS	
		Transfer rate synchronous (maximum)	3 Gb/sec	
		Seek time (typical reads, including settling)	Single track	0.27 ms
			Average	3.5 ms
			Full-stroke	3.5 ms
			Rotational speed	15,000 rpm
		Physical Configuration	Bytes/Sector	512
			Logical Blocks	143,374,737
		Operating Temperature	50° to 95° F (10° to 35° C)	

48X Max IDE (ATAPI) CD-ROM Drive 398972-B21	Disk	Applicable Disk	CD-ROM, CD-XA, CD-DA (Mode 1, Mode 2, Form 1 and 2)
			Photo CD (Single and Multi-session)
			Mixed Mode (Audio and Data combined)
			CD-R
		Capacity	540MB (Mode 1, 12 cm)
			650MB (Mode 2, 12 cm)
	Block Size	Mode 1	2,048 bytes, 1024 bytes
		Mode 2	2,340 bytes, 2,336 bytes, 1024 bytes
		CD-DA	2,352 bytes
		CD-XA	2,328 bytes
	Interface	IDE (ATAPI)	
	Access Times (typical)	Random	<100 ms
		Full-Stroke	<150 ms
	Data Transfer Rate	Sustained	3000 to 7200 KB/s (20X to 48X)
		Burst	150 KBps to 7,200 KBps
		Bus Rate	16.7 MBps
	Cache Buffer	128 KB	
	Start-up Time (typical)	< 7 seconds	
	Stop Time	< 4 seconds	
	Laser Parameters	Type	Semiconductor Laser GaA1As
		Wave Length	780 ± 25 nm
	Operating Conditions	Temperature	41° to 122° F (5° to 50° C)
		Humidity	10% to 90%
	Dimensions	(HxWxD, maximum)	1.63 x 5.75 x 7.87 in (41.3 x 146 x 200 cm)
		Weight	2.64 lb (1.2 kg)

Technical Specifications

4 port Embedded SATA controller	SATA Protocol	SATA 2, 3Gb/s
	SATA Ports	4 internal
	Port transfer rate	1.5 Gb/s total
	Maximum Capacity	up to 2 TB (4 x 500GB non hot plug SATA HDD)
	RAID Levels Supported	RAID 1+0 (Striping & Mirroring) RAID 1 (Mirroring) RAID 0 (Striping) RAID 5 (Striping with parity)
	Logical RAID Volumes Supported	NOTE: On SATA models with embedded RAID, setup instructions are located in User Guide, CTO RAID is set-up not available. HP ProLiant 100 Series Server User Guide: http://h20000.www2.hp.com/bc/docs/support/SupportManual/c00368941/c00368941.pdf?jumpid=reg_R1002_USEN
HP 8 Internal Port SAS Host Bus Adapter with RAID (SAS Model only)	Dimensions (excluding bracket)	6.6 x 2.5 x 0.6 in (16.8 x 6.4 x 1.6 cm)
	Disk Drive and Enclosure Protocol Support	3 Gbps SAS (Serial Attached SCSI) 1.5 Gbps SATA (Serial Advanced Technology Attachment)
	Architecture	64-bit
	SAS Connectors	2 internal SFF8484 x4 Wide SAS Connectors 12 Gbps per x4 Wide SAS Port (4 x 3 Gbps)
	Data Transfer Method	64-bit wide, PCI-X 133 MHz (1 GB/s maximum bandwidth)
	PCI Bus Speed	PCI-X-133 and 3.3 volt PCI compatibility only
	PCI	PCI-X and 3.3 volt PCI compatibility only
	Simultaneous Drive Transfer Ports	2 x4 Wide SAS Connectors
	Port Transfer Rate	12 Gb/s per x4 Wide SAS Port (4 x 3 Gb/s)
	Software upgradeable Firmware	Yes
	Maximum Capacity	576GB (8 x 72GB)
	Memory Addressing	64-bit, supporting servers memory greater than 4 GB
	Logical Drives Supported	Up to 2 Logical Volumes Up to 10 drives total in all RAID volumes Up to 2 Drives per RAID 1 Up to 8 Drives per RAID 0
	RAID Support	RAID 1 (Mirroring) RAID 0 (Striping)
	Upgradeable Firmware	4-MB flashable ROM
	Disk Drive and Enclosure Protocol Support	3 Gbps SAS and 1.5 Gbps SATA
	NOTE: Slot 2 only supports standard PCI 32 bit add-on card due to proximity of the Heat Sink.	

Technical Specifications

Embedded NC320i PCIe Gigabit Server Adapter	Network Interface	10Base-T/100Base-TX/1000Base-TX	
	Compatibility	IEEE 802.3 10Base-T	
		IEEE 802.3ab 1000Base-T	
		IEEE 802.3u 100Base-TX	
	Data Transfer Method	Single lane (x1), 100MHz PCI Express Reference Clock	
	Network Transfer Rate	10Base-T (Half-Duplex)	10 Mb/s
		10Base-T (Full-Duplex)	20 Mb/s
		100Base-TX (Half-Duplex)	100 Mb/s
		100Base-TX (Full-Duplex)	200 Mb/s
		1000Base-TX (Half and Full-Duplex)	2000Mb/s
	Connector	RJ-45 connector	
	Cable Support	10Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)
		10/100/1000Base-TX	Category 5 UTP; up to 328 ft (100 m)

Environment-friendly Products and Approach	End-of-life Management and Recycling	Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to http://www.hp.com/go/green. To recycle your product, please go to: http://www.hp.com/go/green or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/green. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

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For hard drives, 1 GB = 1 billion bytes. Actual formatted capacity is less.